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EXAMINER	
NWAKAMMA, CHIBUIKE K	

ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,687	OTTE ET AL.	
	Examiner	Art Unit	
	CHIBUIKE K. NWAKAMMA	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-21* is/are pending in the application.

4a) Of the above claim(s) *3* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-18* is/are rejected.

7)☒ Claim(s) *19-21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

SPE note: re 112, 2nd, your rejection sounds like the "variable….." is new matter, not 112, 2nd. Please clarify your position whether you want to say the claims are misdesriptive or the limitation is a new matter? If it is new matter, then 112, 1st. Re 103 rejection, you do not need the 2nd reference. See the rejection I have rewritten below. Because of these changes, you will need to modify the rest of the 103 rejections in your OA. Hoa (3/27/09)

DETAILED ACTION

1. An amendment filed on 02/12/2009 has been considered with the following results.

2. The disclosure is objected to because of the following informalities: The specification does not show the headings for Background of Invention, Brief Summary of Invention, Brief Description of Drawings, and Detailed Description of Invention. Appropriate correction is required.

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
I STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.

(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

1. Claims 8, 15-16, 18-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8, 18-19 and 21 recite "a **variable** negative resistance" which is mis-descriptive in light of the specification. Page 7, lines 29-30 and page 8, line 1 discloses "a negative resistance Rp". Further, page 2, line 13 read "an actuator system is robust with a view to parameter variations".

Claims which have not been mentioned are rejected as they are dependent on a rejected base claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Kojima (US 6118613).

Regarding claim 8, Kojima teaches an actuator driver circuit (Fig. 5, element 100) comprising:

a variable negative resistance (R_n) including an input resistor (R_i), a first resistor R and a second resistor R_o (col. 12, lines 35-40 and Equation 19); and

at least one switch (Fig. 5, element 47) for selectively connecting the input resistor (R_i) to the first resistor (R) or the second resistor R_o in response to a control signal (In) from a controller (5 and 30; Formula 19; Col. 12, lines 10-15, 24-40; The impedance circuit 47 is equated as a switch for when capacitor C_i is considered open [i.e., switching out], the circuit is short-circuited. So, it is clear that when the capacitor is not open [i.e., switching in], the circuit is not short-circuited. The process of short-circuiting and non-short circuiting is a selective means).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-2 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (US 6118613) in view and Boddey et al (US 4805519).

Regarding claim 1, Kojima teaches a method for driving (Fig. 5, element 100) an actuator (1), the method comprising the act of changing electrical damping of the actuator 1 by selectively activating at least one switch 47, in response to a control signal (In) from a controller (5 and 30) for switching in or out an electrical damping element 36 providing a negative resistance (Fig. 5 and Col. 12, lines 10-15, 24-40. The impedance circuit 47 is equated as a switch and is a component of the electrical damping element (negative resistance circuit 36). An activation process is attained when the capacitor is considered open (i.e., switching out), thereby changing element 36 into short-circuit. Negative resistance is provided, see formula 19). **However**, does not disclose wherein the electrical damping element is connected in series with the controller and the actuator.

Boddey discloses a control system (drawing) that can be installed in any structure where it is desired to operate dampers (col. 2, lines 62-63) and where the damper is operated by a solenoid (col. 3, lines 31-32). The control system comprises a control unit (3), a damper control unit 6 (i.e. electrical damping element), and a damper actuating means 5 (i.e. actuator) connected in series via a data transmission cable that is associated with a power cable which supplies the necessary electric power to the units 6 and/or the damper actuating means 5 of the damper assemblies (Drawing and col. 4, lines 51-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kojima to include the teachings of Boddey where the electrical damping element is connected in series with the controller and the actuator, so, to compensate a series resistance component in order to oscillate the circuit.

Regarding claim 2, Kojima in view of Boddey teaches the method of claim 1.

Kojima further teaches wherein the electrical damping of the actuator (Fig. 5, elements 36, 1) is changed by changing an electrical resistance of an actuator drive loop (Col. 12, lines 63-67...current value of actuator is varied by R_c. It is clear that the value of R_c changes where R_c represents the electrical resistance of the actuator drive loop).

Regarding claim 17, Kojima in view of Boddey teaches the method of claim 1.

Boddey (Drawing) further teaches wherein the electrical damping element (damper control unit 6) is connected in between the controller (3) and the actuator (damper actuating means 5).

6. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (US 6118613) in view of Matoba et al (US 5301174).

Regarding claim 15, Kojima discloses the actuator driver circuit of claim 8. However, does not teach a disc drive apparatus for reading or writing a disc, the

apparatus comprising a pickup element and at least one actuator for manipulating the pickup element; wherein the disc drive apparatus comprises the actuator driver circuit according to claim 8.

Matoba discloses a disc drive apparatus for reading or writing a disc (Fig. 2; col. 1, lines 6-10), the apparatus comprising a pickup element 10 and at least one actuator 14 for manipulating the pickup element 10; wherein the disc drive apparatus (Fig. 2) comprises the actuator driver circuit 17.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kojima with the teachings of Matoba by incorporating Matoba's disc drive apparatus for reading or writing a disc, the apparatus comprising a pickup element and at least one actuator for manipulating the pickup element; wherein the disc drive apparatus comprises the actuator driver circuit according to claim 8. The modification would have been obvious for the benefit of compensating to generate an error signal so that a lock control is performed on objective lens of the disc drive apparatus thereby preventing the objective lens from oscillating at the position of the designated track, that is, damped oscillation (Matoba; col. 7, lines 5-14).

Regarding claim 16, Kojima in view of Matoba teaches the disc drive apparatus according to claim 15.

Matoba further teaches wherein said pickup element 10 is an objective lens of an optical system for scanning tracks of an optical disc (col. 6, lines 66-67...objective lens installed in the optical head; col. 1, lines 6-11).

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (US 6118613) in view of Nakamura et al (US 3655988).

Regarding claim 18, Kojima teaches the actuator driver circuit of claim 8. But, fails to disclose wherein the variable negative resistance is connected in series with the controller.

Nakamura discloses a switching device that comprises a circuit including a two terminal switching diode element having negative resistance characteristics connected in series with a control means (col. 1, lines 49-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kojima to include the teachings of Nakamura where the variable negative resistance is connected in series with the controller, so, to control light emittance from the circuit and to provide a switching device of outstanding simplicity for simultaneous on-off control of photo and electrical outputs and which responds so quickly as on the order of 10^{-7} seconds in terms of time lag (Nakamura; col. 1, lines 14-15, 36-38, and 47-48).

8. Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matoba et al (US 5301174) in view of Kojima (US 6118613).

Regarding claim 9, Matoba discloses an actuator driver circuit (Fig. 2, elements 14-15 and 17) for actuating an actuator having a first terminal b and a second terminal a, the actuator driver circuit (14-15 and17) comprising a drive signal source (8-10) connected to the first terminal b of the actuator (Fig. 2 and col. 6, lines 43-49; It is clear elements 8-10 is connected to the first terminal b via element 18), wherein the first terminal b is configured to receive the drive signal (Sact signal) and is different from the second terminal a. However, does not teach an electrical damping element having a negative resistance connected between the second terminal of the actuator and ground.

Kojima teaches an actuator driver circuit (Fig. 5, elements 100) comprising an electrical damping element (36) having a negative resistance (Col. 12, lines 35-40) connected between a terminal (terminal voltage E) of the actuator (1) and ground.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matoba to include the teachings Kojima where an electrical damping element having a negative resistance is connected between the second terminal of the actuator and ground, so, to suppress mechanical resonance and to form negative resistance between the negative input terminal of the operational amplifier and ground (Kojima; col. 1, lines 7-8 and col. 6, lines 1-3).

Regarding claim 10, Matoba in view of Kojima teaches an actuator of claim 9. Kojima further discloses controllable means (Fig. 5, element 47. The capacitor 49Ci is part of the negative resistance circuit 36, i.e., electrical damping element, it can be considered open hence, current does not flow [col. 12, lines 13-14] in which case short-

circuit occurs [col. 12, line 25]. It is clear that the capacitor acts as a switch as it has the capability of being considered open/not open) for selectively switching said electrical damping element into or out of a signal path from the actuator (Fig. 5, element 1) to the ground.

Regarding claim 11, Matoba in view of Kojima teaches an actuator of claim 9. Kojima further discloses controllable means (Fig. 5, element 47. The capacitor 49Ci is part of the negative resistance circuit 36, i.e., electrical damping element, it can be considered open hence, current does not flow [col. 12, lines 13-14] in which case a short-circuit occurs [col. 12, line 25]. It is clear that the capacitor acts as a switch as it has the capability of being considered open/not open) for selectively switching components of said electrical damping element into or out of operation in order to adjust damping properties of the electrical damping element (Fig. 5, element 36).

Claim 12 is an apparatus claim correspondent to apparatus claim 9. Therefore, claim 12 is analyzed and rejected as previously discussed with respect to claim 9.

Regarding claim 13, Matoba in view of Kojima teaches an actuator of claim 12.

Kojima further discloses controllable means (Fig. 5, element 47. The capacitor 49Ci is part of the negative resistance circuit 36, i.e., electrical damping element, it can be considered open hence, current does not flow [col. 12, lines 13-14] in which case short-circuit occurs [col. 12, line 25]. It is clear that the capacitor acts as a switch as it

has the capability of being considered open/not open) for selectively switching said electrical damping element into or out of a signal path between the second terminal (terminal voltage E) of the actuator (Fig. 5, element 1) and the ground.

Regarding claim 14, Matoba in view of Kojima teaches the actuator of claim 12.

Kojima further discloses controllable means (Fig. 5, element 47. The capacitor 49Ci is part of the negative resistance circuit 36, i.e., electrical damping element, it can be considered open hence, current does not flow [col. 12, lines 13-14] in which case a short-circuit occurs [col. 12, line 25]. It is clear that the capacitor acts as a switch as it has the capability of being considered open/not open. When the capacitor is open/not open, damping properties of element 36 are adjusted) for selectively switching components of said electrical damping element into or out of operation in order to adjust damping properties of the electrical damping element (36).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (US. 6118613) in view of Boddey et al (US 4805519) and Hammond et al (US 5635848).

Regarding claim 4, Kojima in view of Boddey discloses the method of claim 1.

Kojima further discloses wherein the electrical damping of the actuator (Fig. 5, elements 100 and 1) deviates from a target position and wherein the electrical damping of the actuator has recovered the target position (Col. 11, line 18-Col. 13 line 7. When a circuit is shorted, i.e., Open, a target position or path has been deviated to another

position or path. And when the circuit is not in a shorted state, i.e., Closed, or it is un-shorted, then it has recovered the target position. The state of being shorted read on target position during normal operative condition and the state of not being shorted read on recovered target position during normal operative condition).

Kojima in view of Boddey does not disclose wherein the electrical damping of the actuator is increased or decreased.

Hammond discloses wherein the electrical damping of the actuator is increased or decreased (Col. 9, lines 3-24. When the position error of the actuator, i.e. focus error, is greater than the reference value error, i.e., threshold, then, the electrical damping of actuator is increased and vice-versa).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Kojima in view of Boddey with the teachings of Hammond by disclosing wherein the electrical damping of the actuator is increased with respect to the damping during normal operative conditions when an actuator position deviates from a target position, and wherein the electrical damping of the actuator is decreased to the normal damping when the actuator has recovered the target position, so, to control the speed at which the probe is actuated as well as the motion characteristics of the actuator in an open loop system, thereby preventing damage to the surface and a worst-case allowance for settling time because the actual position of probe is not known. Moreover, in a close loop system avoiding high frequency scraping of surface while the system oscillates to make positional corrections (Hammond; Col. 1, line 61-Col. 2, line 13).

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (US. 6118613) in view of Boddey et al (US 4805519) and Matoba et al (US 5301174) and further in view of Hammond et al (US 5635848).

Regarding claim 5, Kojima in view of Boddey discloses the method of claim 1. However, does not disclose applied in an optical disc drive for radially driving an objective lens radial actuator, wherein the electrical damping of the radial actuator is increased when a radial error signal indicates a radial error exceeding a predefined threshold, or when the radial error signal becomes absent; and wherein the electrical damping of the radial actuator is decreased to the normal damping when the radial error signal indicates said radial error decreasing below said predefined threshold, or when the radial error signal returns, respectively.

Matoba teaches a method applied in an optical disc drive for radially driving an objective lens radial actuator (Fig. 2, elements 17, 14-15, and 10; col. 1, lines 6-11 reads "optical disk recording and reproducing apparatus"; col. 6, lines 66-67 reads "objective lens installed in the optical head"; and col. 5, lines 15-20). Therefore, it would have been obvious to one of ordinary skill in the art to modify Kojima in view of Boddey with the teachings of Matoba where Kojima's method is applied in an optical disc drive for radially driving an objective lens radial actuator, so, to record and/or reproduce data in accordance to the focusing and tracking of actuator.

Kojima in view of Boddey and Matoba does not disclose wherein the electrical damping of the radial actuator is increased when a radial error signal indicates a radial error exceeding a predefined threshold, or when the radial error signal becomes absent;

and wherein the electrical damping of the radial actuator is decreased to the normal damping when the radial error signal indicates said radial error decreasing below said predefined threshold, or when the radial error signal returns, respectively.

Hammond discloses position error Xerr, of actuator, i.e., radial error greater than a reference value, Xerr, i.e., predefined threshold (Col. 9, lines 3-24), and position error Xerr, of actuator, i.e., radial error less than a reference value, Xerr, i.e., predefined threshold (Col. 9, lines 3-24).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Kojima in view of Boddey and Matoba with the teachings of Hammond by disclosing electrical damping of the focus actuator being increased when a focus error signal exceeds a predefined threshold and electrical damping of the focus actuator being decreased when the focus error signal decreases below said predefined threshold, so, to control the speed at which the probe is actuated as well as the motion characteristics of the actuator in an open loop system, thereby preventing damage to the surface and a worst-case allowance for settling time because the actual position of probe is not known. Moreover, in a close loop system, avoiding high-frequency scraping of surface while the system oscillates to make positional corrections (Hammond; Col. 1, line 61-Col. 2, line 13).

Regarding claim 7, Kojima in view of Boddey discloses the method of claim 1.However, does not teach applied in an optical disc drive for radially driving an objective lens radial actuator, wherein the electrical damping of the actuator is

increased in response to a command indicating a jump to another track, and wherein the electrical damping of the actuator is decreased to the normal damping when the new target track has been reached.

Matoba teaches a method applied in an optical disc drive for radially driving an objective lens radial actuator (Fig. 2, elements 17, 14-15, and 10; col. 1, lines 6-11...optical disk recording and reproducing apparatus; col. 6, lines 66-67...objective lens installed in the optical head; and col. 5, lines 15-20).; and further teaches track jumping in accordance to positive and negative acceleration patterns of optical head during coarse access operation (col. 1, lines 18-23 and 35-46; col. 5, lines 33-41).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Kojima in view of Boddey with the teachings of Matoba where Kojima's method is applied in an optical disc drive for radially driving an objective lens radial actuator and track jumping in accordance to positive and negative acceleration patterns of optical head during coarse access operation, so, to record and/or reproduce data in accordance to the focusing and tracking of actuator.

Kojima in view of Boddey and Matoba does not disclose wherein the electrical damping of the actuator is increased, and wherein the electrical damping of the actuator is decreased to the normal damping when the new target track has been reached.

Hammond discloses wherein the electrical damping of the actuator is increased and wherein the electrical damping of the actuator is decreased (Col. 9, lines 3-25. When the position error of the actuator (focus error) is greater than the reference value, (threshold) then, the electrical damping of actuator is increased and vice- versa).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Kojima in view of Boddey and Matoba with the teachings of Hammond where electrical damping of the actuator is increased in response to a command indicating a jump to another track and electrical damping of the actuator is decreased to the normal damping when the new target track has been reached, so, to control the speed at which the probe is actuated as well as the motion characteristics of the actuator in an open loop system, thereby preventing damage to the surface and a worst-case allowance for settling time because the actual position of probe is not known. Further, to avoid in a close loop system, high frequency scraping of surface while the system oscillates to make positional corrections (Hammond; Col. 1, line 61-Col. 2, line13).

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (US 6118613) in view of Boddey et al (US 4805519) and further in view of Enomoto (US 4783774) and Hammond et al (Patent No. 5635848).

Regarding claim 6, Kojima in view of Boddey discloses the method of claim 1.

Kojima in view of Boddey does not disclose an optical disc drive for axially driving an objective lens focus actuator, wherein the electrical damping of the focus actuator is increased when a focus error signal indicates a focus error exceeding a predefined threshold, or when the focus error signal becomes absent; and wherein the electrical damping of the focus actuator is decreased to the normal damping when the focus error

signal indicates said focus error decreasing below said predefined threshold, or when the focus error signal returns, respectively.

Enomoto discloses optical disc drive (Fig. 4 and Col. 5, lines 10-12) for axially driving an objective lens focus actuator (Col. 7, lines 33-59).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Kojima in view of Boddey with the teachings of Enomoto to disclose an optical disc drive for axially driving an objective lens focus actuator, so, to achieve higher efficiency of a power conversion from electric energy to kinetic energy when pulse width modulation technique is a applied (Enomoto; Col. 2, lines 53-58).

Kojima in view of Boddey and Enomoto does not disclose wherein the electrical damping of the focus actuator is increased when a focus error signal indicates a focus error exceeding a predefined threshold, or when the focus error signal becomes absent; and wherein the electrical damping of the focus actuator is decreased to the normal damping when the focus error signal indicates said focus error decreasing below said predefined threshold, or when the focus error signal returns, respectively.

Hammond discloses position error Xerr, of actuator, i.e., focus error greater than a reference value, Xerr, i.e., predefined threshold (Col. 9, lines 3-24), and position error Xerr, of actuator, i.e., focus error less than a reference value, Xerr, i.e., predefined threshold (Col. 9, lines 3-24).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Kojima in view of Boddey and Enomoto with the teachings of Hammond by disclosing electrical damping of the focus actuator being increased when a focus error signal

exceeds a predefined threshold and electrical damping of the focus actuator being decreased when the focus error signal decreases below said predefined threshold, so, to control the speed at which the probe is actuated as well as the motion characteristics of the actuator in an open loop system, thereby preventing damage to the surface and a worst-case allowance for settling time because the actual position of probe is not known. And in a close loop system, avoiding high-frequency scraping of surface while the system oscillates to make positional corrections (Hammond; Col. 1, line 61-Col. 2, line 13).

Allowable Subject Matter

11. Claims 19-21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments filed 12 Feb. 2009 with respect to claims 1-2, 4-16 have been considered but are moot in view of the new ground(s) of rejection.

On page 8 of applicant's remark, applicant argued “In the Office Action, the Examiner objected to the specification for lacking headings. Applicants respectfully decline to add the headings as they are not required in accordance with MPEP §608.01(a), and could be inappropriately used in interpreting the specification. Accordingly, withdrawal of the objection to the specification is respectfully requested”.

The Examiner notes applicant's argument, however, 37 CFR 1.77(b) and (c) indicates adding section headings of the specification sections defined in paragraphs (b)(1) through (b)(12).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kawai (US 6545570 B2), Nair et al (US 5942952), Dillon (US 4554504), and Gasser et al (US 4015190).

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chibuike K. Nwakamma whose telephone number is 571-270-3458. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Informati6on regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. K. N./

Examiner, Art Unit 2627

23 March 2009

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